



PKINASE (*Mechanisms and functional consequences of protein kinase C isoform translocation inhibition in monocytes exposed to microgravity.*)

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Objective:

- ◆ Specifically this experiment will determine why monocyte differentiation into macrophages is severely reduced in returning astronauts.
- ◆ To determine the effect of microgravity on Protein Kinase C (PKC) regulated genes that control monocyte differentiation, the initiation of apoptosis (cell death) and cell cycle arrest.
- ◆ To fully characterize the effect of microgravity on the activation of PKC.
- ◆ To evaluate downstream signaling of PKC in response to mitogenic stimulation.

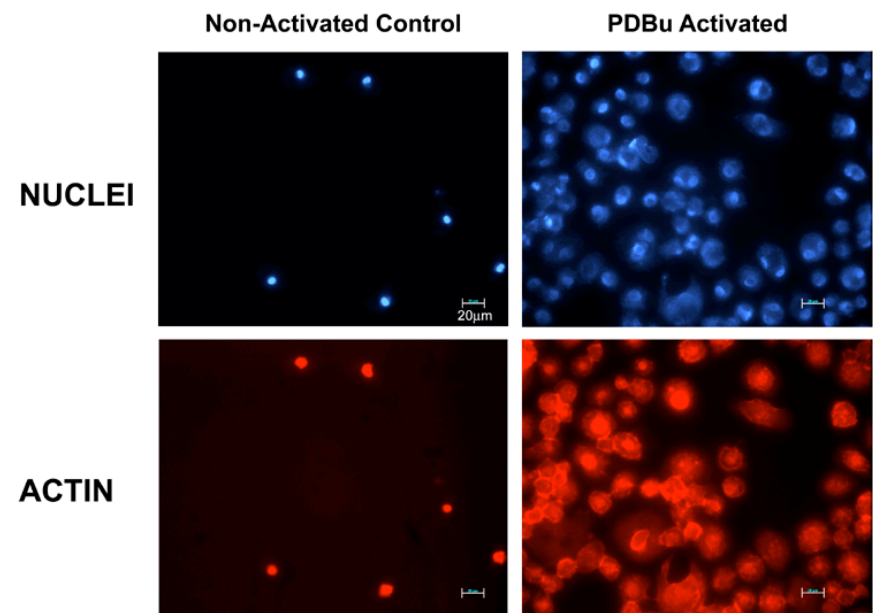
Relevance/Impact:

- ◆ This investigation is one of a series of experiments designed to find out why some astronauts experience altered immune function during and/or following spaceflight.
- ◆ Reduced macrophage activity (due to decreased monocyte differentiation) may be a second major cause of astronaut immunosuppression. By understanding why the monocyte does not differentiate into macrophage we will be better able to mitigate immunosuppression.
- ◆ For a small investment in a NASA peer-reviewed selected PI NASA maintain an international space life science collaboration with ESA.

Development Approach & Outcome:

- ◆ Experiment Sequence Test in Zurich successfully completed in June 2007. The team is prepared for flight, all laboratory supplies have been shipped to Amsterdam.

Monocyte differentiation in Normal Gravity



Project Life Cycle Schedule

Milestones	PDR	CDR	CT	Safety	FRR	Launch	Ops	Return	Final Report
Actual/ Baseline	ESA	ESA	ESA	ESA	ESA	10/2007 15S	Sortie	10/2007	Return + 12m